WHAT IS CLAIMED:

add

1. A method of synthesizing an interframe predicted
5   image comprising:

        a first step for calculating the values of
    motion vectors of four representative points at
    coordinates (i,j), (i+p, j), (i, j+q), (i+p, j+q)
    (where i, j, p, q are integers, the horizontal and
10 vertical components of the motion vectors of the
    representative points taking the values of integral
    multiples of 1/k where k is the hk power of 2, and hk
    is a non-negative integer),

        a second step for calculating the motion
15 vectors of a pixel at coordinates (x+w, y+w) by
    performing bilinear interpolation/extrapolation on the
    motion vectors of the four representative points of an
    image where the pixel sampling interval in both the
    horizontal and vertical directions is 1 and the
20 horizontal and vertical coordinates of the sampling
    points are obtained by adding w to integers   (where
    w=wn/wd, wn is a non-negative integer, wd is a hw power
    of 2, hw is a non-negative integer and wn<wd), where
    the aforesaid second step comprised of :

25   a third step for calculating the horizontal and
    vertical components of motion vectors at the
    coordinates (i, y+w) as numerical values which are
    respectively integral multiples of 1/z (where z is the

hz power of 2, and hz is a non-negative integer) by
linear interpolation/extrapolation of the motion
vectors of the representative points at the coordinates
(i, j), (i, j+q), and for calculating the horizontal
and vertical components of the motion vectors at the
coordinates (i+p, y+w) as values which are respectively
integral multiples of 1/z (where z is the hz power of 2,
and hz is a non-negative integer) by linear
interpolation/extrapolation of the motion vectors of
the representative points at coordinates (i+p, j), (i+p,
j+q), and

        a fourth step for calculating the horizontal
and vertical components of the motion vectors of the
pixel at the coordinates (x+w, y+w) as values which are
respectively integral multiples of 1/m (where m is the
hm power of 2, and hm is a non-negative integer), found
by linear interpolation/extrapolation of the aforesaid
two motion vectors at the coordinates (i, y+w), (i+p,
y+w).

2. A method of synthesizing an interframe predicted
image comprising:

        a first step for calculating the values of
motion vectors of four representative points at
coordinates (i,j), (i+p, j), (i, j+q), (i+p, j+q)
(where i, j, p, q are integers, the horizontal and
vertical components of the motion vectors of the
representative points taking the values of integral

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multiples of 1/k where k is the hk power of 2, and hk
is a non-negative integer),

a second step for calculating the motion
vectors of a pixel at coordinates (x+w, y+w) by
performing bilinear interpolation/extrapolation on the
motion vectors of four representative points of an
image where the pixel sampling interval in both the
horizontal and vertical directions is 1 and the
horizontal and vertical coordinates of the sampling
points are obtained by adding w to integers (where
w=wn/wd, wn is a non-negative integer, wd is a hw power
of 2, hw is a non-negative integer and wn<wd), where
the aforesaid second step comprised of :

a third step for calculating the horizontal and
vertical components of motion vectors at the
coordinates (x+w, j) as numerical values which are
respectively integral multiples of 1/z (where z is the
hz power of 2, and hz is a non-negative integer) by
linear interpolation/extrapolation of the motion
vectors of the representative points at the coordinates
(i, j), (i+p, j), and for calculating the horizontal
and vertical components of the motion vectors at the
coordinates (x+w, j+q) as values which are respectively
integral multiples of 1/z (where z is the hz power of 2,
and hz is a non-negative integer) by linear
interpolation/extrapolation of the motion vectors of

the representative points at coordinates (i, j+q), (i+p, j+q), and

a fourth step for calculating the horizontal and vertical components of the motion vectors of the pixel at the coordinates (x+w, y+w) as values which are respectively integral multiples of 1/m (where m is the hm power of 2, and hm is a non-negative integer), found by linear interpolation/extrapolation of the aforesaid two motion vectors at the coordinates (x+w, j), (x+w, j+p).

3. A method of synthesizing an interframe prediction image as defined in Claim 1, wherein, when the motion vectors of a pixel at the coordinates (x+w, y+w) are found using (u0, v0), (u1, v1), (u2, v2), (u3, v3), which are the horizontal and vertical components of the motion vectors of the representative points at the coordinates (i,j), (i+p, j), (i, j+q), (i+p, j+q) multiplied by k, (uL(y+w), vL(y+w)) which are the horizontal and vertical components of the motion vectors at a point having the coordinates (i, y+w) multiplied by z, are found by calculating:

uL(y+w)=(((q.wd-y.wd-wn)u0+(y.wd+wn)u2)z)////(q.k.wd),

vL(y+w)=(((q.wd-y.wd-wn)v0+(y.wd+wn)v2)z)////(q.k.wd)

(where [////] is a division wherein the computation result is rounded to the nearest integer when the

result of an ordinary division is not an integer, and
the order of computational priority is equivalent to
multiplication and division),

uR(y+w), vR(y+w)) which are the horizontal and

5   vertical components of the motion vector at a point
having the coordinates (i+p, y+w) multiplied by z, are
found by calculating:

$$uR(y+w) = (((q.wd-y.wd-wn)u1+(y.wd+wn)u3)z)////(q.k.wd)$$

10 $$vR(y+w) = (((p.wd-y.wd-wn)v1+(y.wd+wn)v3)z)///(q.k.wd), \text{ and}$$

(u(x+w), y+w), v(x+w, y+w)) which are the
horizontal and vertical components of the motion vector
of a pixel at the coordinates (x+w, y+w) multiplied by

15 m, are found by calculating:

$$u(x+w, y+w) = (((p.wd-x.wd-wn)uL(y+w)+(x.wd+wn)uR(y+w))m)//(p.z.wd)$$

$$v(x+w, y+w) = (((p.wd-x.wd-wn)vL(y+w)+(x.wd+wn)vR(y+w))m)//(p.z.wd)$$

20 (where [//] is a division wherein the computation
result is rounded to the nearest integer when the
result of an ordinary division is not an integer, and
the order of priority is equivalent to multiplication
and division).

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4. A method of synthesizing an interframe prediction
image as defined in Claim 2, wherein, when the motion
vectors of a pixel at the coordinates (x+w, y+w) are

found using (u0, v0), (u1, v1), (u2, v2), (u3, v3), which are the horizontal and vertical components of the motion vectors of the representative points at the coordinates (i,j), (i+p, j), (i, j+q), (i+p, j+q)

5   multiplied by k,

(uT(x+w), vT(x+w)) which are the horizontal and vertical components of the motion vectors at a point having the coordinates (x+w, j) multiplied by z, are found by calculating:

10   uT(x+w)=(((p.wd-x.wd-wn)u0+(x.wd+wn)u1)z)////(p.k.wd),

vT(x+w)=(((p.wd-x.wd-wn)v0+(x.wd+wn)v1)z)////(p.k.wd)

(where [////] is a division wherein the computation

15   result is rounded to the nearest integer when the result of an ordinary division is not an integer, and the order of computational priority is equivalent to multiplication and division),

(uB(y+w), vB(y+w)) which are the horizontal and

20   vertical components of the motion vectors at a point having the coordinates (x+w, j+p) multiplied by z, are found by calculating: uB(x+w)=(((p.wd-x.wd-wn)u2+(x.wd+wn)u3)z)////(p.k.wd) vB(x+w)=(((p.wd-x.wd-wn)v2+(x.wd+wn)v3)z)////(p.k.wd), and

25   (u(x+w), y+w), v(x+w, y+w)) which are the horizontal and vertical components of the motion vectors of a pixel at the coordinates (x+w, y+w) multiplied by m, are found by calculating:

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$$u(x+w, \; y+w) = (((q.wd-y.wd-wn)uT(x+w)+(y.wd+wn)uB(x+w))m)//(q.z.wd)$$

$$v(x+w, \; y+w) = (((q.wd-y.wd-wn)vT(x+w)+(y.wd+wn)vB(x+w))m)//(q.z.wd)$$

5 (where [//] is a division wherein the computation result is rounded to the nearest integer when the result of an ordinary division is not an integer, and the order of priority is equivalent to multiplication and by division).

10 5. A method of synthesizing an interframe predicted image as defined in Claim 1, wherein the absolute value of p is the α power of 2 (where a is a non-negative integer).

15 6. A method of synthesizing an interframe predicted image as defined in Claim 2 or 4, wherein the absolute value of q is the β power of 2 (where β is a non-negative integer).

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7. A method of synthesizing an interframe predicted image as defined in Claim 1, wherein the absolute values of p and q are respectively the α power of 2 and β power of 2 (where α, β are non-negative

25 integers).

8. A method of synthesizing an interframe predicted image as defined in Claim 2, wherein the absolute

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values of p and q are respectively the α power of 2 and β power of 2 (where α, β are non-negative integers).

9. A method of synthesizing an interframe predicted image as defined in Claim 5, wherein $\alpha+hz$ is a positive integral multiple of 8, and w is 0.

10. A method of synthesizing an interframe predicted image as defined in Claim 6, wherein $\beta+hz$ is a positive integral multiple of 8, and w is 0.

11. A method of synthesizing an interframe predicted image as defined in Claim 5, wherein $\alpha+hz+hw$ is a positive integral multiple of 8, and w>0.

12. A method of synthesizing an interframe predicted image as defined in Claim 6, wherein $\beta+hz+hw$ is a positive integral multiple of 8, and w>0.

13. A method of synthesizing an interframe predicted image as defined in Claim 9, wherein the value of hz is varied according to the value of α so that $\alpha+hz$ is 16 or less for plural different values of α.

14. A method of synthesizing an interframe predicted image as defined in Claim 10, wherein the value of hz

is varied according to the value of β so that $\beta + hz$ is

16 or less for plural different values of β.

15. A method of synthesizing an interframe predicted
image as defined in Claim 11, wherein the value of hz
is varied according to the value of α so that $\alpha + hz + hw$
is 16 or less for plural different values of α.

16. A method of synthesizing an interframe predicted
image as defined in Claim 12, wherein the value of hz
is varied according to the value of β so that $\beta + hz + hw$
is 16 or less for plural different values of β.

17. A method of synthesizing an interframe predicted
image as defined in any of Claims 1 to 16, wherein $z \geq m$.

18. A method of synthesizing an interframe predicted
image as defined in any of Claims 1 to 17, wherein $k \geq z$.

19. A method of synthesizing an interframe predicted
image as defined in any of Claims 1 to 18, wherein the
absolute values of p and q are respectively different
from the number of horizontal and vertical pixels in
the image.

20. A method of synthesizing an interframe predicted
image as defined in any of Claims 1 to 19, wherein,
when r is the number of pixels in the horizontal

direction and s is the number of pixels in the vertical

direction of the image (where r, s are positive

integers), 1/2 of the absolute value of p is less than

r, the absolute value of p is equal to or greater than

5   r, 1/2 of the absolute value of q is less than s, and

the absolute value of q is equal to or greater than s.

21. A method of synthesizing an interframe predicted

image as defined in any of Claims 1 to 19, wherein,

10   when r is the number of pixels in the horizontal

direction and s is the number of pixels in the vertical

direction of the image (where r, s are positive

integers), the absolute value of p is equal to or less

than r, twice the absolute value of p is larger than r,

15   the absolute value of q is equal to or less than s, and

twice the absolute value of q is larger than s.

22. A method of synthesizing an interframe predicted

image as defined in any of Claims 1 to 21, wherein,

20   when the number of pixels in the horizontal and

vertical directions of the image is respectively r and

s (where r and s are positive integers), and the pixels

of the image lie in a range wherein the horizontal

coordinate is from 0 to less than r and the vertical

25   coordinate is from 0 to less than s,

(u0, v0), (u1, v1), (u2, v2), (u3, v3)

which are expressed by

$$u'(x, y) = (((s.cd-cn-y.cd)((r.cd-cn-x.cd)u00 + (x.cd+cn)u01) + (y.cd+cn)((r.cd-cn-x.cd)u02+(x.cd+cn)u03))k) ///(r.s.n.cd),$$

$$v'(x, y) = (((s.cd-cn-y.cd)((r.cd-cn-x.cd)v00 + (x.cd+cn)v01) + (y.cd+cn)((r.cd-cn-x.cd)v02+(x.cd+cn)v03))k) ///(r.s.n.cd),$$

$$u0=u'(i, j)$$
$$v0=v'(i, j)$$
$$u1=u'(i+p, j)$$
$$v1=v'(i+p, j)$$
$$u2=u'(i, j+q)$$
$$v2=v'(i, j+q)$$
$$u3=u'(i+p, j+q)$$
$$v3=v'(i+p, j+q)$$

(where [///] is a division wherein the computation result is rounded to the nearest integer when the result of an ordinary division is not an integer, and the order of priority is equivalent to multiplication and division), are used as the k times horizontal and vertical components of motion vectors of representative points (i,j), $(i+p, j)$, $(i, j+q)$, $(i+p, j+q)$, by using $(u00, v00)$, $(u01, v01)$, $(u02, v02)$, $(u03, v03)$ (where $u00$, $v00$, $u01$, $v01$, $u02$, $v02$, $u03$, $v03$ are integers), which are n times (where n is a positive integer) motion vectors at the corners of an image situated at the coordinates $(-c, -c)$, $(r-c, -c)$, $(-c, s-c)$, $(r-c, s-c)$ (where $c=cn/cd$, cn is a non-negative integer, cd is a positive integer and $cn<cd$), whereof the

horizontal and vertical components take the values of
integral multiples of 1/n.

23. An image encoding method using a method of
synthesizing an interframe predicted image comprising:
a first step for outputting a difference
between an image signal of a current frame which is to
be encoded and an interframe predicted image as a
differential image,
a second step for transforming the signal of
said differential image to obtain a transformed signal
which is then encoded,
a fourth step for applying an inverse
transformation to said transformed signal to produce a
decoded differential image of said differential image,
and
a fifth step for producing an interframe
predicted image signal for the frame immediately
following said current frame image signal using said
decoded differential image and said interframe
predicted image, wherein
said fifth step is performed by an interframe
predicted image synthesis method as defined in any of
Claims 1 to 16.

24. An image coding method as defined in Claim 23,
wherein said fifth step comprises a step for detecting

and encoding information relating to motion vectors of the representative points.

25. An image coding method as defined in Claim 23, wherein the representative points in said fifth step are the corners of the image.

26. An image decoding method comprising:

a first step for inputting an interframe coding signal of an image frame which is to be decoded and motion vector information concerning said image frame,

a second step for transforming said interframe coding signal into a decoded differential signal,

a third step for producing an interframe predicted image from a decoded image signal of another image frame different in time form said image to be decoded and said motion vector information, and

a fourth step for adding the decoded differential signal and said interframe predicted image signal to obtain a decoded image signal of said image frame which is to be decoded, wherein

said third step is performed by an interframe predicted image synthesis method as defined in any of Claims 1 to 16.

27. An image decoding method as defined in Claim 26, wherein said plural representative points are the corner points of said image used by reproducing

information relating to the motion vectors of the
representative points directly encoded as encoded data.

28. An image decoding method as defined in Claim 26,
wherein said plural representative points are the
corner points of said image.

29. An encoding device comprising an encoder which
encodes an image signal of a current frame to be
encoded, an interframe predicted image and part of the
output of a first transforming unit which transforms
the image signal, a second transforming unit which
applies an inverse transformation to part of the output
of the first transforming unit to obtain a decoded
differential image of said differential image, decoding
means which obtains a decoded image of the signal of
the current frame from said decoded differential image
and said interframe predicted image, and a motion
compensating unit which adds the decoded image of said
immediately preceding frame and the input image of said
current frame to synthesize said interframe predicted
image, wherein:

said motion compensating unit comprises a
global motion vector estimating unit for calculating
the values of motion vectors of four representative
points at coordinates (i,j), (i+p, j), (i, j+q), (i+p,
j+q) (where i, j, p, q are integers, the horizontal and
vertical components of the motion vectors of the

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representative points taking the values of integral
multiples of 1/k where k is the hk power of 2, and hk
is a non-negative integer) of said decoded image of the
immediately preceding frame from the decoded image of

5   said immediately preceding frame and the input image of
the current frame, and a predicted image synthesizing
unit for producing an interframe predicted image which
predicts the signal of the current frame to be encoded
from said motion vectors and the decoded image of said

10 immediately preceding frame, and

said predicted image synthesizing unit
comprises a computing unit for calculating the motion
vectors of a point at coordinates (i, y+w) by
performing bilinear interpolation/extrapolation on the

15 motion vectors of representative points situated at
coordinates (i, j),
(i, j+q) of an image lying on a number of sampling
points obtained by adding an integer w to the
horizontal and vertical coordinates when a pixel

20 sampling interval in both the horizontal and vertical
directions is 1 (where w=wn/wd, wn is a non-negative
integer, wd is a hw power of 2, hw is a non-negative
integer and wn<wd), calculating the horizontal and
vertical components of motion vectors at the

25 coordinates (i, y+w) as numerical values which are
respectively integral multiples of 1/z (where z is the
hz power of 2, and hz is a non-negative integer) by
linear interpolation/extrapolation of the motion

vectors of representative points at the coordinates (i, j), (i, j+q), calculating the horizontal and vertical components of the motion vectors at the coordinates (i+p, y+w) as values which are respectively integral

5   multiples of $1/z$ (where z is the hz power of 2, and hz is a non-negative integer) by linear interpolation/extrapolation of the motion vectors of the representative points at coordinates (i+p, j), (i+p, j+q), and calculating the horizontal and vertical

10 components of the motion vectors of the pixel at the coordinates (x+w, y+w) as values which are respectively integral multiples of $1/m$ (where m is the hm power of 2, and hm is a non-negative integer) by linear interpolation/extrapolation of the aforesaid two motion

15 vectors at the coordinates (i, y+w), (i+p, y+w), and

a synthesizing unit for synthesizing a predicted image from the motion vectors of a pixel situated at the aforesaid coordinates (x+w, y+w) and the decoded image of said immediately preceding frame.

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30. An encoding device comprising a subtractor which outputs a difference between an image signal of a current frame to be encoded and an interframe predicted image signal as a differential image, an encoder which

25 encodes part of the output of a first transforming unit for transforming the signal of said differential image, a second transforming unit which applies an inverse transformation to part of the output of the first

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transforming unit to obtain a decoded differential

image of said differential image, decoding means which

obtains a decoded image of the current frame from said

decoded differential image and said interframe

5   predicted image, and a motion compensating unit which

uses the decoded image of said immediately preceding

frame and an input image 601 of said current frame to

synthesize said interframe predicted image, wherein

said motion compensating unit comprises a

10   global motion vector estimating unit for calculating

the values of motion vectors of four representative

points at coordinates (i,j), $(i+p, j)$, $(i, j+q)$, $(i+p,$

$j+q)$ (where i, j, p, q are integers, the horizontal and

vertical components of the motion vectors of the

15   representative points taking the values of integral

multiples of 1/k where k is the hk power of 2, and hk

is a non-negative integer) of said decoded image of the

immediately preceding frame from the decoded image of

said immediately preceding frame and the input image of

20   the current frame, and a predicted image synthesizing

unit for producing an interframe predicted image which

predicts the signal of the current frame to be encoded

from said motion vectors and the decoded image of said

immediately preceding frame, and

25   said predicted image synthesizing unit

comprises a computing unit for calculating the motion

vectors of a point at coordinates $(x+w, j)$ by

performing bilinear interpolation/extrapolation on the

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motion vectors of representative points situated at coordinates (i, j), (i+p, j) of an image where the pixel sampling interval in both the horizontal and vertical directions is 1 and the horizontal and vertical coordinates of the sampling points are obtained by adding to integhers (where w=wn/wd, wn is a non-negative integer, wd is a hw power of 2, hw is a non-negative integer and wn<wd), calculating the horizontal and vertical components of motion vectors at the coordinates (x+w, j+q) as numerical values which are respectively integral multiples of 1/z (where z is the hz power of 2, and hz is a non-negative integer) by linear interpolation/extrapolation of the motion vectors of the representative points at the coordinates (i, j+q), (i+p, j+q), and calculating the horizontal and vertical components of the motion vectors of the pixel at the coordinates (x+w, y+w) as values which are respectively integral multiples of 1/m (where m is the hm power of 2, and hm is a non-negative integer) by linear interpolation/extrapolation of the aforesaid two motion vectors at the coordinates (x+w, j), (x+w, j+p), and

a synthesizing unit for synthesizing a predicted image from the motion vectors of a pixel situated at the aforesaid coordinates (x+w, y+w) and the decoded image of said immediately preceding frame.

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31. An encoding device as defined in Claim 29, wherein, when the motion vectors of a pixel at the coordinates (x+w, y+w) are found using (u0, v0), (u1, v1), (u2, v2), (u3, v3), which are the horizontal and vertical components of the motion vectors of the representative points at the coordinates (i,j), (i+p, j), (i, j+q), (i+p, j+q) multiplied by k,

(uL(y+w), vL(y+w)) which are the horizontal and vertical components of the motion vectors at a point having the coordinates (i, y+w) multiplied by z, are found by calculating:

uL(y+w)=(((q.wd-y.wd-wn)u0+(y.wd+wn)u2)z)////(q.k.wd),

vL(y+w)=(((q.wd-y.wd-wn)v0+(y.wd+wn)v2)z)////(q.k.wd)

(where [////] is a division wherein the computation result is rounded to the nearest integer when the result of an ordinary division is not an integer, and the order of computational priority is equivalent to multiplication and division),

uR(y+w), vR(y+w)) which are the horizontal and vertical components of the motion vector at a point having the coordinates (i+p, y+w) multiplied by z, are found by calculating:

uR(y+w)=(((q.wd-y.wd-wn)u1+(y.wd+wn)u3)z)////(q.k.wd) vR(y+w)=(((p.wd-y.wd-wn)v1+(y.wd+wn)v3)z)////(q.k.wd), and

(u(x+w), y+w), v(x+w, y+w)) which are the horizontal and vertical components of the motion vector

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of a pixel at the coordinates (x+w, y+w) multiplied by
m, are found by calculating:

$$u(x+w, \ y+w) = (((p.wd-x.wd-wn)uL(y+w)+(x.wd+wn)uR(y+w))m)//(p.z.wd)$$

$$v(x+w, \ y+w) = (((p.wd-x.wd-wn)vL(y+w)+(x.wd+wn)vR(y+w))m)//(p.z.wd)$$

(where [//] is a division wherein the computation
result is rounded to the nearest integer when the
result of an ordinary division is not an integer, and
the order of priority is equivalent to multiplication
and division).

32. An interframe predicted image encoding device as
defined in Claim 30, wherein, when the motion vectors
of a pixel at the coordinates (x+w, y+w) are found
using (u0, v0), (u1, v1), (u2, v2), (u3, v3), which are
the horizontal and vertical components of the motion
vectors of the representative points at the coordinates
(i,j), (i+p, j), (i, j+q), (i+p, j+q) multiplied by k,
(uT(x+w), vT(x+w)) which are the horizontal and
vertical components of the motion vectors at a point
having the coordinates (x+w, j) multiplied by z, are
found by calculating:

$$uT(x+w) = (((p.wd-x.wd-wn)u0+(x.wd+wn)u1)z)////(p.k.wd),$$

$$vT(x+w) = (((p.wd-x.wd-wn)v0+(x.wd+wn)v1)z)////(p.k.wd)$$

(where [////] is a division wherein the computation result is rounded to the nearest integer when the result of an ordinary division is not an integer, and the order of computational priority is equivalent to multiplication and division),

uB(y+w), vB(y+w)) which are the horizontal and vertical components of the motion vectors at a point having the coordinates (x+w, j+p) multiplied by z, are found by calculating:

uB(x+w) = (((p.wd-x.wd-wn)u2+(x.wd+wn)u3)z)////(p.k.wd)   vB(x+w) = (((p.wd-x.wd-wn)v2+(x.wd+wn)v3)z)////(p.k.wd), and

(u(x+w), y+w), v(x+w, y+w)) which are the horizontal and vertical components of the motion vectors of a pixel at the coordinates (x+w, y+w) multiplied by m, are found by calculating:

u(x+w, y+w) = (((q.wd-y.wd-wn)uT(x+w)+(y.wd+wn)uB(x+w))m)//(q.z.wd)

v(x+w, y+w) = (((q.wd-y.wd-wn)vT(x+w)+(y.wd+wn)vB(x+w))m)//(q.z.wd)

(where [//] is a division wherein the computation result is rounded to the nearest integer when the result of an ordinary division is not an integer, and the order of priority is equivalent to multiplication and division).

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33. An interframe predicted image encoding device as defined in Claim 29, wherein the absolute value of p is the α power of 2 (where α is a non-negative integer).

34. An interframe predicted image encoding device as defined in Claim 30, wherein the absolute value of q is the β power of 2 (where β is a non-negative integer).

35. An encoding device as defined in Claim 29, wherein the absolute values of p and q are respectively the α power of 2 and β power of 2 (where α, β are non-negative integers).

36. An encoding device as defined in Claim 30, wherein the absolute values of p and q are respectively the α power of 2 and β power of 2 (where α, β are non-negative integers).

37. An encoding device as defined in Claim 33, wherein α+hz is a positive integral multiple of 8, and w is 0.

38. An encoding device as defined in Claim 34, wherein β+hz is a positive integral multiple of 8, and w is 0.

39. An encoding device as defined in Claim 33, wherein α+hz+hw is a positive integral multiple of 8, and w>0.

40. An encoding device as defined in Claim 34, wherein β +hz+hw is a positive integral multiple of 8, and w>0.

41. An encoding device as defined in Claim 37, wherein the value of hz is varied according to the value of a so that α + hz is 16 or less for plural different values of α .

42. An encoding device as defined in Claim 38, wherein the value of hz is varied according to the value of β so that β +hz is 16 or less for plural different values of β .

43. An encoding device as defined in Claim 39, wherein the value of hz is varied according to the value of α so that α +hz+hw is 16 or less for plural different values of α .

44. An encoding device as defined in Claim 40, wherein the value of hz is varied according to the value of β so that β +hz+hw is 16 or less for plural different values of β .

45. An encoding device as defined in any of Claims 29 to 40, wherein said motion compensating unit further comprises means for encoding information relating to motion vectors of said representative points.

46. An encoding device as defined in any of Claims 29 to 40, wherein said representative points are points at the corners of an image.

47. An encoding device as defined in any of Claims 29 to 40, wherein said first transforming unit and second transforming unit are respectively a circuit which applies a DCT transformation and quantizes the signal of said differential image, and a circuit which performs inverse quantization and an inverse DCT transformation.

48. An image decoding device comprising a transforming unit for transforming a signal of a differential image of an interframe differential code of an encoded image signal, a frame memory for storing a decoded frame image signal, a predicted image synthesizing unit for inputting motion vectors of said encoded image signal and the decoded frame image signal of said frame memory, and synthesizing a predicted image, an adding unit for adding the output of said predicted image synthesizing unit and the output of said transforming circuit to produce a decoded image, and means for storing the output of said adding unit in said frame memory, wherein said predicted image synthesizing unit comprises means for synthesizing an interframe predicted image as defined in any of Claims 1 to 16.

49. A storage medium on which software has been recorded for implementing the method of synthesizing an interframe predicted image as defined in any of Claims 1 to 22.

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50. A storage medium on which software has been recorded for driving an image decoding device as defined in Claim 48.

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51. A storage medium on which an encoded bit stream generated by an encoding method as defined in Claim 23, 24 or 25 has been recorded.

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52. A storage medium on which a compressed, encoded bit stream which can be decoded by an image decoding method as defined in Claim 26, 27 or 28, has been recorded.